# Measuring and improving police performance: the lessons of Compstat and its progeny

Improving police performance

439

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Abstract Police performance measurement systems based on traditional indicators, such as arrest rates and response times, prevent police organizations from moving towards a strategy of community problem solving as there is no way to hold police departments externally accountable for addressing community concerns and no way to hold particular officers internally accountable for engaging community problem-solving activities. In the absence of relevant measurement systems, police executives experience difficulty motivating their managers and line-level officers to change their approach towards policing. A number of departments have made considerable progress in developing performance measurement systems that both address community concerns and drive their organizations towards a community problem-solving strategy. This paper argues why police executives would want to measure performance, describes how measurement is important in driving organizational change, discusses what police departments should be measuring, and presents an exploratory qualitative analysis of the mechanisms at work in the New York Police Department's Compstat and its application in six other police departments.

# Introduction

As police departments evolved from the professional model of policing towards a strategy of community and problem-oriented policing, it became clear that the traditional measures of police performance had become outdated and needed to be changed (Kelling, 1992; Langworthy, 1999). Performance measurement systems based on response times, clearance rates, and numbers of arrests offer little in the evaluation of police efforts to address community needs and problems. Measurement systems based entirely on these indicators prevent police organizations from moving towards a strategy of community problem solving as there is no way to hold police departments externally accountable for addressing community concerns and no way to hold particular officers internally accountable for engaging community problem-solving activities. As such, in the absence of relevant measurement systems, police executives experience difficulty motivating their managers and line-level officers to change their approach towards policing.

A number of departments have made considerable progress in developing performance measurement systems that both address community concerns and Policing: An International Journal of



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Policing: An International Journal of Police Strategies & Management Vol. 26 No. 3, 2003 pp. 439-453 © MCB UP Limited 1363-951X DOI 10.1108/13639510310489485 drive their organizations towards a community problem-solving strategy. The most famous example is the New York Police Department's (NYPD) innovative Compstat system that held police managers accountable for preventing crime in their precincts. In this paper, we argue why police executives would want to measure performance, describe how measurement is important in driving organizational change, discuss what police departments should be measuring, present an exploratory qualitative analysis of the mechanisms at work in Compstat and its application in six other police departments, and conclude with an illustration of how to capture the value added by police engaged in community problem solving.

# **Embracing external accountability**

At the outset, it is not clear why police executives would want to measure the performance of their agencies. As one executive put it, "Why, when someone is aiming a gun at you, should you give him the bullets to shoot you?" To this question, three answers can be given (for different arguments for and against measuring performance in the public sector, see Walters (1998)). The first reason to measure performance is simply because police executives may have no choice but to do so. Determined citizens, ambitious mayors, aroused city councils, and persistent interest groups can demand and get an accounting of what the publicly supported police have done with the resources entrusted to them. A second reason to measure performance: even if citizens and their representatives do not demand accountability, it is still ethically and morally the right thing to do. When one becomes a police executive, one explicitly assumes the responsibility for deploying a collectively owned asset. It is one's moral and ethical duty not only to use that asset well, but also to give an account of how the asset is being used so that the "owners" of the enterprise can be satisfied that their purposes are being pursued.

These first two reasons, important as they are, really do not add up to a powerful reason for a police executive to want to engage in the difficult and apparently thankless task of embracing external accountability. As a practical matter, it still looks like a bad idea. It is the third reason, however, that when combined with the other two adds up to a powerful reason to embrace accountability. The third reason is this: it is only by embracing external accountability that a police chief can actually have any chance of driving the organization to high levels of performance, or to shifting the overall strategy of the organization. Since this point is unfamiliar, we discuss it further here.

It is often said that the reforms of the progressive era made the police "independent" by separating the police from political influence (see e.g. Walker, 1992). What they actually did was make police chiefs profoundly dependent on the support of their own troops, because they had no countervailing pressure to bring to bear on the troops. Without a countervailing pressure, and with strong reasons to want to align themselves with the values of their troops, police chiefs ended up leading their troops by championing their cause against the public rather than the public's cause against the police.

There are a number of instances where police values are in conflict with Improving police public values (see Moore (1990) for a discussion). For instance, police omnipresence and accessibility provides value to citizens in medical and social emergencies not involving actual victimization. The police may view these service calls as distractions from their crime control function. As a practical matter, the only way that police managers can insist that public values be advanced through police operations when these values conflict with police values is for the police to accept the public demands as legitimate ones. There are only two ways this will occur. One is when the public values align with values that the police themselves have so that there is no conflict between the two. The second is when there is conflict between the two, but the police officers can see that the public's demand that their values be expressed through police operations is sufficiently strong and durable that, even though the police officers do not like them, they will nonetheless have to accommodate themselves to these demands. The public's values can only come to look this way when there is a powerful, enduring constituency that insists on certain standards of performance; and when those standards of performance are encoded in a performance measurement system (Moore, 1995).

The only way for police managers to acquire a strong current of accountability through their organizations is to build behind them a powerful, persistent constituency that demands from their organization the same things that they are demanding, and to attach a measurement system to these particular values. Note that this is precisely what former Commissioner William Bratton did in challenging the NYPD to control crime. He was helped in this effort by the fact that the crime reduction values he was embracing were traditionally supported inside and outside the department. In this sense, the newly embraced accountability aligned with some important internal values of the police. It was much harder for former Commissioner Patrick Murphy, some 30 years earlier, to create a strong sense of accountability for eliminating corruption in the organization, for the system of corruption that was being attacked had become strongly entrenched in the organization (Jasanoff, 1977). It was also hard for former Commissioner Lee Brown, both in Houston and in New York, to demand a shift in the strategy of policing from reactive policing to community problem-solving, since those values were new and threatening to the organization (Moore, 1990; Kennedy, 1990; Sparrow et al., 1990). In these cases where the values to be advanced do not align with internal cultural commitments, managers have to help external constituencies who want these things to become articulate and powerful, to embrace accountability to these constituencies, and to construct measurement systems that measure the extent to which they are meeting these new demands (Moore, 1995; Sparrow et al., 1990). Their success in doing this will determine the pace and extent of the changes they can make in police operations. The more external pressure, the more rapid the pace of change.

# Performance measurement to drive internal accountability

Assuming that managers accept the idea that some degree of external accountability is both inevitable and potentially helpful to them as they seek to lead their organizations toward improved performance, they must recognize that the embrace of external accountability alone is not enough. They have to find the administrative means to distribute the accountability they have embraced more broadly throughout the organization. Or, to rely on a crude metaphor, having plugged oneself into a powerful voltage generator by embracing external accountability, it is important to find a way to distribute the current more widely through the organization so that everyone can be motivated by its tingle. In doing the wiring, there are several important things to consider. One is to get the current running in the right direction — to make sure that managers and officers are being encouraged to express the right combination of substantive values (Behn, 1997). Moore (2002) suggests that these substantive values include:

- · reducing crime and victimization;
- calling offenders to account;
- reducing fear/enhancing individual security;
- ensuring civility in public spaces;
- the efficient and fair use of public resources;
- · using force and authority economically and fairly; and
- providing quality services/ maintaining customer satisfaction.

Another important part of the design of a performance measurement system, however, is to get the amount of current right. If too much voltage runs through the system, the organization may become paralyzed, or lose its capacity to be imaginative and resourceful in responding to new situations. If too little voltage is generated, the organization may well grow slack and inattentive. Here are five features of the design of a performance management system that would likely influence the amount of voltage flowing through the system:

- (1) The first and most important is the extent to which the internal system of performance measurement is aligned with the external reporting system. External expectations are generally the "drivers" of change in police organizations. If external authorizers expect and demand certain attributes of performance, if the organization reports on these, and if these are also the principal internal measures of performance, then a great deal of pressure will line up behind achieving these goals.
- (2) The second feature of a performance measurement system that determines its power to guide behavior is the extent to which it is aligned with the organization's internal organizational structure, and is tied to real consequences for the mangers of the subordinate units. It is only measurement systems that are used to record the accomplishment

performance

- of managers that affect their current salaries, status, or prospects for Improving police advancement that have behavioral power.
- (3) The third feature of a performance system that matters is the frequency of the measurements, and the speed of the feedback from managerial acts to measured effects.
- The fourth influential feature of a performance measurement system is the visibility and publicity of the reports (Behn, 1997). If a manager's performance is known to all his peers, that is more behaviorally powerful than if it is kept confidential between the manager and his or her superiors.
- The fifth device increasing the power of the measurement system concerns the extent to which the results of the measurement system are taken as definitive, and strict liability imposed on managers, rather than as the beginning of a conversation about how the manager has performed and what might be done to improve.

# What to measure

One of the key issues in using performance measurement for internal management purposes has been whether the measures should focus on: the ultimate results of policing such as reduced crime and enhanced security (which we will call outcomes); or police efforts to produce these results (which we will call activities and outputs); or the investments made in the police (which we will call inputs or organizational development activities) (for a discussion, see Walters (1998)). Recently, those advising public organizations about how to improve their accountability and performance have emphasized the use of outcome measures rather than activities or outputs. The reasons are pretty obvious[1]. For one thing, the outcomes are direct measures of the value that the police seek to produce. Unless we can see the value, we cannot be sure that police efforts are worthwhile. In this respect, outcomes are closer to a true "bottom line" for policing. In addition, the measurement of outcomes also allows us to test existing operational theories to find out "what works" in policing. Without outcome measures, it would also be very difficult to guide police departments toward the reliable creation of public value.

However, in policing, there are many important reasons to pay attention to output and process as well as to outcomes. Society as a whole has expectations about how the police will do their work as well as what the results of their work will be. This is particularly true when we are talking about how the police use the authority of their office: the powers to stop, to detain, to arrest, and to use force to accomplish these goals. But it is also true when we are talking about the use of money. Police departments, for example, have long been reviewed in terms of how complete their policies and procedures were, what kind of training they provided to officers, how much overtime they used, and the extent to which they had "civilianized" their workforce. They have also long been evaluated in terms of how efficiently and effectively their staffing patterns matched the times and places where crime was likely to occur. Besides, these processes and activities are things that the police can measure easily and are well within their control. And, one cannot learn much about whether a particular operational approach worked or not unless one can measure what the police did to ensure that the operational approach was actually implemented. All this adds up to important reasons to measure inputs (i.e. activities) and outputs as well as results and outcomes.

Given these observations, it probably makes sense to accept the idea that police managers should not restrict themselves to simply one outcome measure to use as the bottom line for policing. It probably makes sense for them to take guidance from the idea of a "balanced scorecard", and develop a battery of measurements that includes:

- outcome measures, both as ultimate measures of value created, and as ways of testing whether innovative programs work or not;
- activity and output measures to focus managerial attention on the way they are using authority and money to accomplish their results; and
- expenditure and investment measures to help organizations manage the transition from traditional styles of policing to the new style more effectively (Kaplan and Norton, 1996).

In sum, multi-dimensional performance spread from outcomes through outputs and activities to investments being made in the organization is probably the best way to conceptualize an effective performance measurement system. This is to be preferred to one that focuses only on outcomes, or only on processes. Below are presented some important dimensions of police performance that departments should strive to measure:

- (1) Reduce criminal victimization:
  - · crimes reported to police;
  - · crimes not reported to police; and
  - violent crimes (reported or not).
- (2) Call offenders to account:
  - · solve crimes; and
  - · arrest offenders.
- (3) Reduce fear and enhance personal security:
  - · subjective experience of fear; and
  - level and kind of self-defense.
- (4) Guarantee safety in public spaces:
  - · protect safety and utilization of public infrastructure:
    - traffic safety;
    - parking enforcement;

- park safety;
- school safety; and
- public transit safety.
- Maintain space for political activity:
  - fair response to applications for parades and demonstrations; and
  - effective response to civil disturbances.
- (5) *Use financial resources fairly, efficiently, and effectively:* 
  - financial integrity;
  - financial accountability;
  - productivity gains/innovation;
  - equal employment opportunity; and
  - · fair contracting.
- (6) Use force and authority fairly, efficiently, and effectively:
  - fair distribution of police services and protection;
  - · fair, unbiased operational policies;
  - controlling corruption;
  - reducing the use of force and authority:
    - minimizing excess force and authority;
    - reducing routine use of force and authority; and
  - perceived legitimacy (see below on obligation encounters).
- (7) Satisfy customer demands/achieve legitimacy with those policed:
  - individuals who call the police;
  - · organized petitioners; and
  - obligation encounters (see above under perceived legitimacy).

# Measurement as an instrument of strategic change

Methodology

Given that performance measurement can and should be used to drive the performance of police departments (including efforts to shift them from the reactive strategy of policing to a strategy that depends on proactive problem-solving), what are the "common" and "best practices" of police managers in using performance measurement for these purposes? How far are we from being able to exploit the full power of performance measurement to accomplish these goals? Unfortunately, we do not have a systematic way of answering these questions because we do not have a representative sample of police departments' internal performance measurement systems to examine. What we do have, however, is the strong example of New York City's Compstat system,

Improving police performance

445

and the capacity to get a sense for the practices of other departments trying to make the change from traditional, reactive strategies of policing to community policing, through six case studies written as part of the effort to evaluate the impact of the federal COPS program on local police departments that applied for and received grants (Albany, NY; Lowell, MA; Portland, OR; Knoxville, TN; Fremont, CA; Riverside, CA (see Roth *et al.*, 2000; Moore, 2002)). The process of selecting these departments was deliberately designed to find departments that had made relatively significant progress in shifting to a new strategy of policing. As a result, these departments cannot be viewed as representative. Four of the departments were judged to be making unusually rapid progress toward community policing. Two were considered closer to the typical rate of change.

In the following exploratory qualitative analysis, we closely examined the six COPS case studies as well as the existing literature on the Compstat process (Silverman, 1999; Bratton, 1998, 1999; Kelling and Coles, 1996).

# New York's Compstat

The Compstat system has become a highly influential administrative innovation in police departments[2]. Indeed, it seems to be setting the standard for police management generally, and particularly for the use of performance measurement in systems of internal accountability. Consequently, it is important to take the measure of this system and how it operates. In reviewing the system, we might take account of two important features of the system: what seems to make it powerful in driving performance, and what it seems to drive the organization to do. The following are some of the features that make this measurement system behaviorally powerful in driving the NYPD:

- The measurement system aligns with organizational units so that the managers of those units can be held accountable for their performance.
- The measures are simple, objective, reliably measured, and continuous so that changes in performance can be observed over time within an operational unit, and across units that are roughly similar.
- The measures are closely aligned with what external overseers want and expect from the organization, with an important value that the organization is trying to produce, and with a goal that the organization itself wants to produce.
- The system holds managers to account frequently enough to capture their attention.
- The managers think that their current standing and pay as well as their future promotional opportunities depend on performing well with respect to these measures.
- The reviews of performance are public so that everyone can see how well a particular manager has done.

performance

• There are many managers in comparable situations so that comparisons Improving police can be made across managers as well as for a particular manager over time.

These features combine to give the Compstat system great behavioral power. The managers in the department work hard, and demand that others work hard, to produce results that the system will record as favorable. Given the power of the system, it is particularly important that one pays close attention to what the system recognizes as valuable, what it ignores, and how managers subject to the system are likely to respond, since that will determine whether the system drives the organization towards high levels of performance or not.

Each precinct commander is held publicly accountable for levels of serious crime in his precinct. It seems that he is more accountable for changes in crime levels in the precinct than for comparisons with other precincts. Moreover, his crime statistics are reviewed in the context of crime rates in immediately adjacent precincts so that he cannot reduce crime in his precinct simply by driving it to neighboring precincts. And, special attention is focused on particular crime problems that seem to be troublesome within the larger overall pattern of serious crime. Thus, it seems that this system corresponds closely to Bratton's view that the overall goal of the precinct commander is to produce reductions in crime in the areas for which he is accountable.

In terms discussed above, this system seems to hold managers accountable for an outcome of policing, rather than an output, or process. It focuses, at least initially, on one dimension of ultimate value rather than on how the police accomplished that result. Yet, if one observes the actual process of the Compstat meetings (as opposed to the information that supports that system), one would observe that the system does begin to focus on processes as well as results. If the Compstat system reveals a crime problem that is getting worse in a precinct, or not improving as much as top management thinks it should, the precinct commander is questioned about his plans for dealing with the problem. He is often peppered with questions about whether he is or is not making use of particular activities such as the use of warrant squads, or increased use of fingerprinting, or arrests for weapons offenses that top management thinks might be helpful in dealing with the problem.

This part of the system has two important features. First, to some degree, it softens the harsh "strict liability" aspects of the system. Precinct commanders are held accountable for reducing crime to be sure. But they can also get credit if they have a thoughtful plan for dealing with crime problems that have not been resolved. A thoughtful plan is one that makes sense, and/or one that takes advantage of processes and activities that are favored by top management. In essence, Bratton's Compstat system was constructed to produce a lot of voltage. It tightly aligned external accountability with internal. Its wiring followed the organizational structure so that individual managers could be called to account for specific results, and the results they achieved were believed to be important to their career prospects. Second, because the system

focuses some attention on plans and processes for achieving results as well as results, the system has some capacity to support innovation and organizational learning about what works to produce results as well as the results themselves. If a manager's plan for dealing with a problem is innovative, and if it works, there is come capacity for the system to capture that idea for the future. If a manager is faced with a problem that he cannot seem to solve, top management has a chance to suggest ideas and, through that device, to spread innovations through the department.

These seem to be the significant strengths of the system. It is also important, however, to note some of the potential weaknesses. First, as noted above, even though this is capturing one important dimension of value to be produced by the police, it is not capturing all the relevant valued dimensions. It does not, for instance, capture levels of fear in the community, or their perceptions of the quality of service they receive. Second, while the system focuses on results, it does not focus much attention on the resources used to produce those results. In this, the system equates the crime reduction effect of policing with the "profit" earned by policing. We cannot observe the "profitability" of policing until we subtract the value of the resources used in policing from the value of the effects produced. Third, although the system allows precinct commanders to talk about their special efforts to deal with serious crime problems, it provides little room for them to talk about problem-solving efforts focused on non-crime problems. Nor is there much room for discussion about the quality of the engagement between the police and community groups in identifying and responding to the concerns of the community. No system can do everything that is valuable, of course. Skilled management often depends on making choices about what particular things to concentrate on, and then living with a system that is at best an imperfect reflection of what one is really trying to achieve (Behn, 1992).

Performance measurement and organizational change in six COPS cities Table I presents a review of the use that six departments made of performance measurement in managing their shift toward community policing. The first column records our estimate of how extensive the department's use of performance measurement was in general, and how important the use or introduction of such systems were in helping the organization manage its shift in strategy. The second column looks at the question of whether these performance measurement systems were negotiated with external overseers, or developed internally within the police department. The remaining columns show what dimensions of performance were the focus of the management information systems. There are several things to note about these data:

(1) There is an important difference between the importance of performance measurement systems between the rapid change departments and the average change departments. The high change departments made more intensive use of performance measurement systems than the average change departments.

Albany	Riverside	Freemont	Knoxville	Lowell	Portland	Improving police performance
•	nce of performan					
Low	Med-Low	Med	Med	Med	High	
Negotiated with	n autnorizors: No	No	No	No	Yes	
Reduce crimina		NO	NO	NO	168	4.40
Crime rate				Compstat	Compstat-like	449
Call offenders t	o account				<b>r</b>	
		Reduced emphasis on arrests	Repeat offender tracking	Compstat	Recidivism in some project evaluations	
	d enhance persona		uarantee safety			
Part II crimes/ general city ordinances		Reduced emphasis on arrests		Repeated citizen surveys	Repeated citizen surveys and project evaluations	
Use financial re	esources fairly, eff	iciently, and effe	ctively		evaractions	
•	Workload		Workload		Workload	
	reviews/ overtime expenses		reviews		reviews	
Use force and a	authority fairly, ef	ficiently, and eff	ectively			
·	Early warning system	5	·	Early warning system/ Compstat	Early warning system	
Satisfy custome	r demands/achiev Neighborhood watch activity	Citizen		Repeated citizen surveys	Repeated citizen surveys	Table I. Use of performance measurement in COPS case studies

- (2) Only one of the departments (Portland, OR) in this sample negotiated its performance measurement systems with its external authorizing environment. That department was one of the most advanced departments in the sample. But the fact that most of the departments operated with performance measurement systems that were disconnected from external oversight reveals the extent to which the police still feel entitled to operate autonomously without significant oversight by their political overseers.
- (3) The influence of Bratton's leadership can clearly be seen in these data. Two of the six departments were already using a system similar to Compstat in managing themselves. Interestingly, in at least the city, the Compstat system combined information about citizen complaints with

- the crime information to get some sense for the extent to which authority was being used (or misused) by the police.
- (4) The most common use of performance measurement systems made by these departments was the development of specific systems designed to capture the extent, nature, and effectiveness of proactive problemsolving initiatives undertaken by the departments.
- (5) Many departments began using surveys to supplement their other performance measurement systems. Sometimes the surveys were general population surveys asking about their criminal victimization, their encounters with the police, and their views of the police. Other times, the surveys were focused on those who called the police, or worked with the police in particular projects, or were the beneficiaries of police operations.
- (6) Two of the six departments initiated special efforts to incorporate citizen complaints about the use of force into their performance measurement systems. Apparently, there is something about the shift to community policing that focuses attention on uses of authority.
- (7) With respect to the efficiency and fairness with which police resources were allocated across the city, three departments conducted more or less regular workload reviews to determine how closely staffing patterns over time and space matched workload needs.

# Lessons learned: capturing the value produced by police

The efforts to develop new performance measurement systems that can capture more of the value produced by police departments, support their learning, and help them strategically re-align themselves represent both an innovation and an investment in the organization's administrative systems. Because they are innovations, a great deal of leadership must be exercised to introduce the systems, deal with problems that arise at the beginning, and ultimately make them culturally acceptable within the organization. Because they are investments, a great deal of money must be spent both to develop and then maintain these new systems. None of this can be done all at once. Consequently, police executives have to decide how to move along a path towards improved performance measurement.

To help with this thinking, Table II presents a graphic illustration that shows the relationship between: the dimensions of performance that would be important to assess in reckoning the value of police departments; and the sources of information that can be used in assessing those dimensions of performance. The dimensions of performance are the familiar ones we have been developing throughout this paper: levels of crime and criminal victimization, levels of fear, success in bringing offenders to account, effectiveness in preventing crimes through means other than arrest, enhancing safety and order in public spaces, using force and authority economically and fairly, using money efficiently, effectively and fairly, ensuring citizen and client

	Reduce Call criminal offender victimization account	Call offenders to account	Reduce fear and enhance personal security	Guarantee safety in public spaces	Guarantee Use financial safety in resources fairly, public efficiently, and spaces effectively	Use force and authority fairly, efficiently, and effectively	Satisfy customer demands/achieve legitimacy with those policed
Administrative records (existing) Reported crime data Arrests and clearance rates Response times Repeat calls Expenditures per capita Sworn personnel Civilian complaints	`	`	`	<b>`</b>	<b>&gt;&gt;</b>	<b>&gt;</b> '	<b>,</b> ,,
Firearms use/civilian casualties						`	`
Survey of citizens (new) People cited or arrested Callers						`	<b>&gt;&gt;</b>
General population	`		`			`	`
Evaluations of programmatic initiatives (new)	`		`	`			
Note: ✓ = high-priority targets for	targets for investment						

**Table II.** Targets of investment

satisfaction with the services, and developing the organization's future capabilities.

The sources of information are divided into three broad categories. First is the information that is available now through the administrative records of the police department. Second is the information that must be gathered by asking those outside the police department what their experiences with the department have been. Third is the information that must be developed to help us understand the effects of particular problem-solving initiatives that are attempted by the organization. When we begin to think about the value of the police in reducing fear, in preventing crimes (without arrests), in enhancing safety and security in public spaces, and in providing responsive, high quality services, we find that we must develop new methods of gathering information. The key new sources of information are:

- surveys (which can be used to capture lots of different kind of information; see Skogan (1999)); and
- evaluations (which can be used to determine what happened as a consequence of problem-solving initiatives undertaken by the police; see Sherman (1997)).

These are the new capabilities that must be developed within police departments if we are going to guide them toward improved performance.

# Notes

- The focus on "outcomes" is evident in the Government Performance Review and Results Act of 1993 (103 P.L. 62).
- 2. Weisburd et al. (2001) found that nearly 60 per cent of departments with 500 or more officers have a Compstat-like program. They also suggest that, unlike the recent innovations in American policing, these programs do not challenge the traditional quasi-military model of police organization and allow police departments to adopt technological innovations in policing while reinforcing the traditional heirarchal structure of policing.

## References

Behn, R. (1992), Bottom-line Government, Governor's Center, Duke University, Durham, NC.

Behn, R. (1997), "Linking measurement and motivation: a challenge for education", in Thurston, P.W. and Ward, J.G. (Eds), *Advances in Education Administration*, JAI Press, Greenwich, CT, pp. 15-58.

Bratton, W. (1998), Turnaround: How America's Top Cop Reversed the Crime Epidemic, Random House, New York, NY.

Bratton, W. (1999), "Great expectations: how higher expectations for police departments can lead to a decrease in crime", in Langworthy, R. (Ed.), *Measuring What Matters: Proceedings from the Police Research Institute Meetings*, National Institute of Justice, Washington, DC, pp. 11-26.

Jasanoff, S. (1977), "Knapp Commission and Patrick Murphy (A)", John F. Kennedy School of Government case program, Harvard University, Cambridge, MA.

Kaplan, R. and Norton, D. (1996), *The Balanced Scorecard*, Harvard Business School Press, Boston, MA.

performance

- Kelling, G. (1992), "Measuring what matters: a new way of thinking about crime and public Improving police order", City Journal, Vol. 2 No. 2, pp. 21-34.
- Kelling, G. and Coles, K. (1996), Fixing Broken Windows, Free Press, New York, NY.
- Kennedy, D. (1990), "Computer-aided police dispatching in Houston, Texas", John F. Kennedy School of Government case program, Harvard University, Cambridge, MA.
- Langworthy, R. (1999), "Measuring what matters: a police research institute", in Langworthy, R. (Ed.), Measuring What Matters: Proceedings from the Police Research Institute Meetings, National Institute of Justice, Washington, DC, pp. 1-4.
- Moore, M.H. (1990), "Police leadership: the impossible dream?", in Hargrove, E. and Glidewell, J. (Eds), Impossible Jobs in Public Management, University Press of Kansas, Lawrence, KS, pp. 73-90.
- Moore, M.H. (1995), Creating Public Value, Harvard University Press, Cambridge, MA.
- Moore, M.H. (2002), Recognizing Value in Policing, Police Executive Research Forum, Washington, DC.
- Roth, J., Ryan, J., Gaffigan, S., Koper, C., Moore, M.H., Roehl, J., Johnson, C., Moore, G., White, R., Buerger, M., Langston, E. and Thacher, D. (2000), National Evaluation of the COPS *Program*, National Institute of Justice, Washington, DC.
- Sherman, L.W. (1997), "Policing for crime prevention", in University of Maryland, Department of Criminology and Criminal Justice (Ed.), Preventing Crime: What Works, What Doesn't, What's Promising, Office of Justice Programs, Washington, DC, pp. 8-1, 8-58.
- Silverman, E. (1999), NYPD Battles Crime, Northeastern University Press, Boston, MA.
- Skogan, W. (1999), "Measuring what matters: crime, disorder, fear", in Langworthy, R. (Ed.), Measuring What Matters: Proceedings from the Police Research Institute Meetings, National Institute of Justice, Washington, DC, pp. 37-54.
- Sparrow, M., Moore, M.H. and Kennedy, D. (1990), Beyond 911: A New Era for Policing, Basic Books, New York, NY.
- Walker, S. (1992), The Police in America, 2nd ed., McGraw-Hill, New York, NY.
- Walters, J. (1998), Measuring Up: Governing Guide to Performance Measurement for Geniuses (and Other Public Managers!), Governing Books, Washington, DC.
- Weisburd, D., Mastrofski, S., McNally, A.M. and Greenspan, R. (2001), Compstat and Organizational Change: Findings from a National Survey, Police Foundation, Washington, DC.